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## Environmental Assessments at IHS Hospitals and Clinics

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### Background

Recently, Congress and the President mandated that the Indian Health Service (IHS), like other Federal agencies, must perform environmental assessments at each of its facilities.<sup>1,2</sup> These assessments will evaluate current environmental conditions and the status of compliance with applicable federal, state, local, and tribal environmental laws and regulations at IHS hospitals and clinics. Furthermore, they will establish a history of adverse environmental events such as fuel spills or leaks from underground storage tanks. Finally, they will form a baseline for an IHS environmental protection and compliance database.

The IHS Environmental Assessment Process consists of three major components: the pre-assessment questionnaire, the environmental assessment survey and protocol, and the final report. Each of these components is discussed later in this report.

### Environmental Assessment and Protocol Development Team

The IHS has chosen to address the environmental assessment challenge using a multidisciplinary team approach. This team consists of personnel from the IHS Office of Environmental Health and Engineering, the Uniformed Services University of the Health Sciences (USUHS), and the

United States Army Center for Health Promotion and Preventive Medicine (USACHPPM). Disciplines represented on the team include environmental health, environmental engineering, and industrial hygiene. This combination of scientists and engineers, along with periodic consultations with other professions, proved to be the most effective way to develop a comprehensive, effective environmental assessment system.

One challenge faced by this team was to develop an assessment process that could be used by facilities in different

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states all across the country. In many circumstances, states have been given the authority to promulgate environmental laws that are more stringent than federal standards. Furthermore, some Indian tribes have passed environmental laws or ordinances which are more stringent than federal requirements. It was not feasible for the team to include all state and/or tribal laws in the assessment protocol; the document would have become so large as to have been unmanageable. The team chose, instead, to concentrate on applicable federal requirements, good management practices, and IHS policies as they pertain to environmental management. It is believed that assessors from the Areas and service units possess the capabilities necessary to identify the applicable state or tribal laws, and to determine compliance with those laws.

#### Pre-assessment Questionnaire

At the heart of the environmental assessment process is the pre-assessment questionnaire. This document gathers baseline information about each facility and its impact on the surrounding environment. It addresses all major environmental concerns including solid waste, regulated medical waste, hazardous materials and waste, underground storage tanks, emergency planning and community right-to-know, air emissions, water pollution, safe drinking water, radon, and pesticides. The pre-assessment questionnaire is organized by Federal environmental regulations such as the Resource Conservation and Recovery Act; the Toxic Substances Control Act; the Clean Air Act; the Clean Water Act; the Superfund Amendment and Reauthorization Act; the Safe Drinking Water Act; and the Federal Insecticide, Fungicide, and Rodenticide Act.

The pre-assessment questionnaires are sent from the Area Office to all healthcare facilities within the service unit where they will be filled out by local Environmental Health Services and Facilities Management staff. Cooperation among service unit staff is essential for the thorough and accurate completion of the questionnaire since many of the items cross the traditional sanitarian/engineer boundaries. It is highly recommended that every effort be made by the service unit staff to complete the questionnaire as thoroughly and accurately as possible. This will significantly shorten the time required for the Area Team to perform the assessment. Consequently, this will also lessen the disruption of services at the health care facility.

The environmental assessment process focuses on conditions throughout a service unit rather than at individual facilities. As a result, a questionnaire must be completed for each hospital, clinic, and health station in the service unit, with the results being compiled into a single, final report.

#### Environmental Assessment Methodology

The next step in the process is the actual environmental assessment. A team from the Area Office, comprised of at

least Environmental Health Services, Facilities Management, and Institutional Environmental Health, will travel to the service unit to validate the data gathered from the questionnaire. Additionally, a briefing is held with the Service Unit Director and other key people at the service unit to address any questions prior to the assessment. Finally, the team conducts a "walk through" survey of the facility. This survey includes short interviews with key staff including the supervisors of Housekeeping, Laboratory, Pharmacy, Dental, Nursing, Property, Radiology, and Central Supply to determine their levels of knowledge, understanding, and involvement in environmental management. The interviews focus primarily on hazardous materials (e.g., formaldehyde) and hazardous wastes (e.g., chemotherapy waste) management.

#### Protocol

The team uses a protocol developed by the IHS, USUHS, and USACHPPM, for guidance during the assessments. This protocol is divided into three major sections (Introduction and Administrative Requirements, Major Compliance Categories, and Appendices)<sup>3</sup> designed to guide the surveyors through detailed information. The Compliance Categories Section is the backbone of the protocol. This section uses a series of checklists to lead the surveyors through the environmental assessment. This insures that all IHS healthcare facilities are surveyed under the same set of requirements and that all assessments performed throughout the IHS will be standardized to the extent possible. These standardized data allow IHS Headquarters to better prioritize the funding needs for major remediation projects.

#### Significant Findings

Significant observations noted during the survey are recorded on Findings Sheets, which provide a standardized format for recording environmental observations and offer an at-a-glance summary of conditions at the hospital or clinic. A preliminary copy of these Findings Sheets may be left at the facility after the assessment is completed, but prior to the issuance of the final report. This allows service unit staff and administration to begin immediately correcting procedural and minor structural deficiencies that pose a current or potential threat to human health or the environment.

#### Final Report

The final report is completed by the Area Office team as soon after the environmental assessment as possible. It is addressed to the Service Unit Director, signed by either Area Director or Associate Director for the Office of Environmental Health and Engineering, with copies sent to the IHS Headquarters. The report includes an executive summary of the assessment; an introduction and brief narrative about the service unit; a summary of the findings from each chapter of the protocol; the Findings Sheets; and Appendices

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that contain at least the pre-assessment questionnaire for each facility and a list of contacts at the service unit.

IHS Headquarters will analyze the Final Reports from all service units and assign a priority rank for remediation and/or funding. Efforts are ongoing to automate this system.

#### Benefits of Environmental Assessments

Although performing environmental assessments places some additional burdens on already busy staffs, the benefits far outweigh those burdens. Properly conducted environmental assessments identify and help prevent conditions that threaten human health and the environment. This will lessen the likelihood of inspections and/or fines by the Occupational Safety and Health Administration and the Environmental Protection Agency.

Additionally, the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) requires hospitals and clinics to comply with applicable federal, state, and local environmental regulations in order to achieve accreditation.<sup>4</sup> These environmental assessments are a tool to help IHS facilities identify and correct non-compliance issues prior to accreditation surveys by the JCAHO.

#### Assessments Under Contract

Not all IHS Areas will choose to perform these Environmental Assessments using Area and service unit staff. There are currently negotiations underway to establish a national contract to be awarded to a single contractor to conduct the Environmental Assessments. This contractor will utilize the IHS Protocol Manual to insure continuity among assessments done in-house and under contract. The contractor is expected to author and submit to IHS Headquarters a final report in the same format as that used by IHS surveyors.

External assessments of all IHS facilities that are sched-

uled for transfer to tribal ownership should be performed under contract.

Contractors will also be retained for special studies and certain remediation activities. These special studies are projects outside the normal duties of Area or service unit staff, and may include activities such as groundwater monitoring and air sampling. Remediation may include cleanup of underground storage tanks or asbestos removal.

#### Summary

Environmental protection and compliance with environmental laws are activities that must be shared by everyone in the IHS. All employees can do their part by substituting, where possible, materials that are less hazardous than ones

currently in use (e.g., citrus-based cleaning agents rather than those that are chlorine-based), by segregating general solid waste from the regulated medical waste stream, and by recycling (e.g., silver from film processors and lead foils from dental x-ray films). The IHS

Area Offices have the responsibilities to coordinate the environmental assessments and to write the final reports, except where these assessments are performed under contract. IHS Headquarters East is responsible for prioritizing and funding major environmental remediation projects. And finally, the Service Unit Directors are responsible for assigning staff to assist in the assessment process, and for providing human and financial resources for local remediation projects.

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2. Executive Order 12088. Federal Compliance with Pollution Standards. 43 Fed Reg 47707
3. Protocol for Environmental Assessment and Review. Rockville, MD: United States Public Health Service, Indian Health Service; 1995.
4. 1996 Accreditation Manual for Hospitals. Oakbrook Terrace, IL: Joint Commission on Accreditation of Healthcare Organizations; 1996. □

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Properly conducted environmental assessments identify and help prevent conditions that threaten human health and the environment.

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# Smoke Detector Nuisance Alarms: A Field Study in a Native American Community\*

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Exceedingly high fire-related death rates make fires the leading cause of unintentional death in the home for Native Americans.<sup>1</sup> The fire death rate for Native Americans in the Aberdeen, South Dakota, Area of the Indian Health Service (IHS), for example, is six times greater than the rate in the United States for all races.<sup>2</sup> And the rate of nonfatal injuries due to residential fires may be as high as eight times the mortality rate.<sup>3</sup>

By providing early warning of a fire, a smoke detector can reduce the risk of residential fire death by 40% or more.<sup>4</sup> In fact, the U.S. Fire Administration has referred to smoke detectors as “potentially the most cost-effective tool we have for reducing deaths from fires.”<sup>5</sup> This is especially true for rural communities, where volunteer fire departments and low population density can lead to long delays in firefighter response times.

However, one serious problem can reduce the efficacy of smoke detectors: disconnecting the devices because of frequent nuisance alarms. A nationwide survey of smoke detectors conducted by the Consumer Product Safety Commission (CPSC) found that 20% of smoke detectors installed in homes were inoperable. One-third of these had missing batteries or had been disconnected as a result of nuisance alarms.<sup>6</sup> Unfortunately, the situation was much worse at . . . [a reservation located in the southwest], where a home survey found 51% of detectors inoperable. Fifty-six percent of these had been disconnected because of nuisance alarms.<sup>7</sup>

In 1995, we undertook a study to determine the rates of smoke detector usage and operability, and the factors associated with nuisance alarms in a Native American community

within the Aberdeen Area IHS. The resulting recommendations for reducing nuisance alarms should increase the proportion of operable smoke detectors.

## Methods

We obtained approval to conduct this investigation from the Devils Lake Sioux Tribal Council and Tribal Health Administration. The Devils Lake Sioux Reservation encompasses 274,322 acres in Benson County, North Dakota. The Bureau of Indian Affairs (BIA) estimates that 4,707 Native Americans live on the reservation. We chose St. Michaels District, one of four communities within the reservation, as the site for our study because it has diverse housing types and various economic strata.

The tribal sanitarian and a community health representative (CHR) surveyed St. Michaels to prepare a map of homes that included at least one enrolled Native American. We identified 240 such homes. We then verified home occupancy by consulting with community members, the BIA Realty Office, and township farm and home directories.

The surveys were conducted from April 1 to June 30, 1995. A systematic sample consisted of unannounced visits to every other household for face-to-face interviews with the most knowledgeable adult present.<sup>†</sup> When residents refused to be interviewed or weren't home after two visits, we visited the next highest numbered household. In households in which at least one smoke detector had ever been present, we conducted full surveys. For households in which a smoke detector had never been installed, we conducted abbreviated surveys.

The survey included 26 questions, as well as physical measurements and visual observations. A nuisance alarm was defined as a smoke detector that sounded when there was no fire. Information collected during the interview included such characteristics as the size of the home, the occupants' ownership status, household demographics, the number and operability of smoke alarms, and a history of each detector's nuisance alarms.

We also measured the distances from the smoke detectors

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<sup>†</sup>Indian-occupied homes on the map were numbered.

to ceiling/wall junctions and to potential nuisance sources such as stoves, bathrooms, and fireplaces. We visually inspected smoke alarms to determine their condition [e.g., physically intact, dirty, etc.]; their type, either photoelectric or ionization; their power source, whether battery, electricity, or a combination; and the model.

We also noted whether the power source was connected. To assess detector operability, we replicated the procedures used in the CPSC national study.<sup>6</sup> Alarms were tested by pressing test buttons, where present, and by spraying them with a smoke-simulating aerosol. Each full survey took approximately 45 minutes to complete. In homes without detectors, abbreviated surveys addressing home ownership and home type took less than 5 minutes to complete.

During the statistical analysis of the survey results, Epi Info Version 6 statistical software was used to calculate Mantel-Haenszel chi-squares and Fisher exact tests for statistical significance ( $p < 0.05$ ).<sup>8</sup> We omitted photoelectric detectors from the statistical analyses of nuisance alarms because there were only three in the sample, and none had produced a nuisance alarm. We also omitted seven smoke detectors from certain analyses because they were in basements physically separated from cooking and steam nuisance sources.

## Results

To obtain a 50% sample of the 240 homes, we visited 173 homes. Residents couldn't be contacted at 51 of the homes, and 2 respondents refused to participate. We completed full surveys in 80 homes that had at least one smoke detector and abbreviated surveys in 40 homes that had never had a smoke detector. Of the 120 homes surveyed, 66 were Housing and Urban Development (HUD) rental or mutual help homes, and the remaining 54 were privately owned. There were 96 single family dwellings, 23 mobile homes, and 1 apartment unit. Of the 120 households surveyed, 40 (33%) didn't have even one smoke detector. HUD homes were much more likely than privately owned homes to possess a smoke detector, 83% versus 46%, respectively. Only 57% of mobile homes had smoke detectors, compared with 69% of single-family dwellings.

Table 1 summarizes the characteristics of the 80 households that had one or more smoke detectors. Natural gas was the primary heating source in 63% of the homes. Only 12 (16%) of the homes had a fireplace

or wood stove. In 73% of the homes, there was at least one cigarette smoker. Sixty-six percent of the households had incomes below the poverty level for a family of four, which is currently \$15,000 per year. Twenty-three percent had at least one person over age 65 staying in the home on a regular basis, and 53% had at least one child under 6 years old. This is significant because young children and the elderly suffer the highest rates of death from residential fires.

In the 80 households that had detectors, we identified 112 smoke detectors (see Table 2). Most homes (71%) had a single smoke detector. In multilevel homes, only 9% had working smoke detectors on floors other than the first floor. Of the 112 detectors, 106 were ionization detectors, 3 were photoelectric, and 3 were of unknown detection technology. Fifty-two detectors (46%) were battery-powered; 49 (44%) were

Table 1. Characteristics of surveyed homes with smoke detectors (N=80).

Characteristic	Number (%)
Home ownership	
HUD rental or mutual help	55 (68.8)
Private	25 (31.3)
Home type	
Single-family home	66 (82.5)
Mobile home	13 (16.3)
Apartment unit	1 (1.3)
Age of home in years	
0 to 14	29 (36.3)
15 to 29	37 (46.3)
30+	14 (17.5)
Area of main floor in square feet	
0 to 949	22 (27.5)
950 to 1199	40 (50.0)
1200+	18 (22.5)
Heat source	
Natural gas	50 (62.5)
Electricity	16 (20.0)
Other	14 (17.5)
Primary cooking appliance	
Gas stove	41 (51.3)
Electric stove	38 (47.5)
Toaster oven/microwave	1 (1.3)
Households with a fireplace or wood stove	12 (15.0)
Households with at least one cigarette smoker	58 (72.5)
Households with at least one child under age 6	42 (52.5)
Households with at least one person over age 65	18 (22.5)
Annual household income*	
Less than \$15,000 per year†	53 (66.3)
More than \$15,000 per year	26 (32.5)

\* One respondent refused.

† Poverty level for a family of four.

Table 2. Characteristics of 112 smoke detectors found in 80 households.

Characteristic	Number(%)
Number of smoke detectors per household	
Homes with one smoke detector	57 (71.3)
Homes with two or more smoke detectors	23 (28.8)
Type of detection source	
Ionization	106 (94.6)
Photoelectric	3 ( 2.7)
Unknown	3 ( 2.7)
Type of power used to supply detector	
Battery	52 (46.4)
Electric	49 (43.8)
Electric with battery backup	11 ( 9.8)
Smoke detector placement	
Ceiling	67 (59.8)
Wall	43 (38.4)
Other	1 ( 0.9)
Smoke detector operability	
Homes in which none of the installed detectors were operable	30 (37.5)
Homes in which at least one detector was operable	50 (62.5)
Homes in which at least one detector was inoperable	36 (45.0)
Reasons for smoke detector inoperability (n=44)	
Battery removed or disconnected because of nuisance alarms	21 (47.7)
Electrical power disconnected because of nuisance alarms	10 (22.7)
Detector removed from premises because of nuisance alarms	7 (15.9)
Battery was removed for other reasons	3 ( 6.8)
Battery was dead	3 ( 6.8)

hardwired to an alternating current source; and 11 (10%) were electrical with battery backup.

Forty-four (48%) of the 112 detectors were inoperable. In 86% of the cases, they had been disconnected or their batteries had been removed as a result of nuisance alarms. In only three instances, the batteries had been removed for reasons other than nuisance alarms, such as for use in other devices. Another three detectors were inoperable because their batteries were dead. Among detectors experiencing nuisance alarms, battery-powered detectors were much more likely to be disconnected than electrical ones, 78% versus 21% [this may be because it is somewhat more difficult to disconnect a hard-wired detector].

Combining the households that had never had any detectors with the multilevel dwellings that had fewer detectors than floors, households in which the wall detectors were improperly installed less than 4 inches or more than 12 inches from the ceiling/wall junction, and the homes with one or more inoperable detectors, there were 104 households with absent or inadequate smoke detector coverage. That's 87% of the 120 households surveyed.

## Nuisance Alarms

There were only three photoelectric detectors in our survey, none of which had had nuisance alarms. One trailer home had had two of these detectors, each of which was paired with an ionization detector that was installed within 6 inches of it. Both of the ionization detectors had sounded cooking nuisance alarms. In another home, the photoelectric detector was located 6 feet closer to the stove than an ionization detector, which [the ionization detector] had frequent nuisance alarms from cooking. Because all the nuisance alarms occurred in the 109 ionization detectors, the following discussion refers only to those. Seventy-nine percent of households reported that one or more of their ionization smoke detectors suffered from nuisance alarms (see Table 3). These alarms occurred among 73 (67%) of the detectors. In fact, some respondents stated that they had hundreds of nuisance alarms in the previous year. Forty-nine percent of the respondents who reported nuisance

alarms had subsequently disconnected the power source from the smoke detector.

Seventy-seven percent [56/73] of the respondents also said that cooking was the cause of their nuisance alarms. Frying caused the majority (77%) of cooking nuisance alarms, followed by baking, which caused 36%. Boiling was responsible for 5%, toasting for 5%, and other cooking styles for 11% [some respondents gave more than one cause of cooking-related nuisance alarms; thus, the total is more than 100%]. The second leading cause of nuisance alarms, steam from bathrooms, was implicated in 18% [13/73] of the [nuisance] alarms. Cooking-related nuisance alarms were significantly related to the distance of the detector from the stove (see Table 4). The cooking-related nuisance rate was 68% for detectors less than 20 feet away, 58% for those 20 to 25 feet away, and 36% for detectors more than 25 feet from the stove. Regular use of a stove fan reduced the cooking-related nuisance alarm rate from 81% to 60% among detectors within 20 feet of the stove. Stove fans didn't affect the nuisance alarm rates for detectors 20 feet or more from the stove; 48% of alarms occurred in detectors when fans were present, and

Table 3. Nuisance alarms among 109 ionization detectors in 80 households.

Characteristic	Number (%)
Households reporting nuisance alarms	63 (78.8)
Ionization detectors with reported nuisance alarms	73 (67.0)
Number of nuisance alarms per detector in past 12 months	
1 to 3	18 (24.7)
4 to 24	21 (28.8)
More than 25	31 (42.5)
Unsure	3 (4.1)
Nuisance alarm causes (n=73)	
Cooking	56 (76.7)
Steam from bathroom	13 (17.8)
Fireplace/wood stove	3 (4.1)
Cigarettes	4 (5.5)
Chirping	1 (1.4)
Other	3 (4.1)
Unknown	5 (6.8)
Type of cooking cited for cooking-generated nuisance alarms (n=56)	
Frying	43 (76.8)
Baking	20 (35.7)
Boiling	5 (8.9)
Toaster/toaster over	5 (8.9)
Other	5 (8.9)
Unknown	1 (1.8)

Among households that had experienced nuisance alarms, the rates of disconnection weren't significantly related to household income.

In this community, nearly half (48%) of all installed smoke detectors didn't work. In 86% of these instances, the detectors were inoperable because they had been disabled or their batteries had been removed to prevent nuisance alarms, which a remarkable 79% of households with smoke detectors had experienced. Almost half (49%) of those who reported nuisance alarms had disconnected the power source from the smoke detector.

These rates are higher than those found in previous studies. For example, the National Smoke Detector Survey found that just over 50% of households had experienced nuisance alarms.

And only 32% of the detectors from which the power had been disconnected or whose batteries were missing had been disabled as a result of nuisance problems.<sup>6</sup> A Texas study<sup>10</sup> involving a remote detection system [automatic notification of the fire department] noted nuisance alarms in 47% of homes. A study of smoke detectors in the homes of welfare recipients in Memphis, Tennessee, reported that 17% of installed detectors didn't work when tested.<sup>11</sup> Only 5% of detectors failed to function in a survey of 68 households in a small Native American community in Washington state.<sup>12</sup>

Our study found that cooking, especially frying, was the leading cause of nuisance alarms. Frying foods in oil at high temperatures can generate large amounts of smoke. The rate of cooking-related alarms is significantly decreased, from 61% to 35%, when ionization detectors are located at least 25 feet from the stove. Kitchen fans appeared helpful in reducing nuisance alarm rates from 80% to 60% when detectors were located less than 20 feet from the stove. Bathroom steam-related nuisance alarms rates decreased from 19% to 0% when detectors were located at least 10 feet from the bathroom door.

Several reports affirm our study's very limited data that photoelectric detectors are less likely to sound nuisance

50% occurred when fans weren't present.

As might be expected, nuisance alarms caused by steam from bathrooms were related to the distance of the detectors from the bathroom door. The nuisance rate was 19% for detectors within 10 feet of the door. Among those located 10 feet or more from the bathroom door, none reported steam-related alarms. Use of a bathroom fan didn't decrease the nuisance alarm rate from bathroom steam. Although 73% of households reported at least one cigarette smoker in residence, only 6% identified cigarette smoking as a cause of nuisance alarms. However, only 57% of homes with no smokers reported nuisance alarms from any source, compared to 71% of homes with one smoker and 80% of homes with two or more smokers. Although not statistically significant, these data suggest that cigarette smoking might increase the sensitivity of ionization detectors, leading to higher nuisance alarm rates.<sup>9</sup> We found that several of the factors we studied weren't significantly associated with nuisance alarms. Among these were home ownership; the type of home; the home heating source; the age of the home; the number of years the occupants had been in residence; the age of the detector; insects, cobwebs, dust, or dirt in the detector; the estimated square footage of the main floor; and the type of power supply.

alarms than ionization detectors.<sup>4,6,10,13</sup> The Texas remote system study, for example, found that ionization detectors had an estimated 10 times as many nuisance activations from all sources compared to photoelectric detectors.<sup>10</sup> This is because ionization detectors are more responsive than photoelectric detectors to particles smaller than 1 micron, such as those contained in cooking smoke. The difference also explains why photoelectronic detectors are somewhat more responsive to smoldering fires, which produce larger smoke particles, while ionization detectors are somewhat more responsive to flaming fires, which produce smaller smoke particles.<sup>4</sup>

Because careless smoking is the leading cause of ignition in fatal house fires<sup>3,5,14</sup> and unattended cigarettes almost always ignite smoldering fires in furniture or bedding,<sup>15</sup> photoelectric detectors would be preferable for the St. Michaels community, where 73% of households have one or more cigarette smokers.

Only two smoke detectors in our study had “hush buttons,” which allow a person to silence the smoke alarm for several minutes. Hush buttons are less than an ideal solution to the nuisance alarm problem for at least two important reasons. First, frequent nuisance alarms from ionization detec-

tors will still be annoying and will eventually prompt many owners to disconnect the power source. And second, owners often find it easier to remove the battery than to repeatedly push the silencer button when smoke exposure is sustained, as it is during cooking.<sup>13</sup>

#### Study Limitations

Problems in recall may reduce the accuracy of responses to the number of nuisance alarms sounded in the past year, the ages of the houses and detectors, and the reasons for nuisance alarms. In addition, several factors limit the degree to which one can generalize from our results. Rates of nuisance alarms will vary among communities, depending on the types of detectors installed, the distance of the detectors from the nuisance sources, and other environmental factors, such as room size and geometry, cooking styles, ambient temperature, and humidity.

Finally, the small sample size of some variables, such as mobile homes, homes whose main floors are more than 1,200 square feet, and homes with fireplaces or wood stoves, limits analysis of the impact these variables have on nuisance alarms.

Table 4. Ionization smoke detector location and use of household fans as factors in nuisance alarms.

Characteristics	Detectors with Nuisance Alarms*	Detectors without Nuisance Alarms†	Statistical Significance
Distance from stove in feet	Number (%)	Number (%)	
0 to 19.9	28 (28.3)	13 (13.1)	p<.05
20+	28 (28.3)	30 (30.3)	
Reported use of kitchen fan			
Yes	36 (36.4)	33 (33.3)	NS
No	20 (20.2)	10 (10.1)	
Distance from bathroom door in feet‡			
0 to 9.9	13 (13.1)	54 (54.5)	p<.01
10+	0 ( 0.0)	32 (32.3)	
Reported use of bathroom fan			
Yes	11 (11.1)	51 (51.5)	NS
No	2 ( 2.0)	35 (35.4)	

\* Stove and kitchen fan data are for cooking-related nuisance alarms; bathroom and bathroom fan data are for bathroom steam-related nuisance alarms.  
† Excludes seven smoke detectors in closed basements where no stove was present.  
‡ Excludes five smoke detectors in closed basements where no bathroom was present.

## Conclusions

New technology will reduce nuisance alarms by having detectors sense heat signatures before they set off an alarm.<sup>16</sup> Until this technology is widely available, however, we favor photoelectric detectors to reduce rates of nuisance alarms from cooking and to provide optimal protection from cigarette-related fires. Electrical detectors with battery back-up are the detectors of choice, except in communities, such as remote villages in Alaska, where alternating current electricity is nonexistent or unreliable. If ionization detectors are installed, they should be located at least 20 feet, and preferably more than 25 feet, from stoves and at least 10 feet from bathroom doors, if possible. Future studies should evaluate the cost-effectiveness of hardwired photoelectric detectors; the optimal placement of detectors to balance early warning of fires with reduced rates of nuisance alarms; and the value of regulatory, engineering, and social marketing approaches to increase the acceptance, correct installation, and maintenance of smoke detectors.

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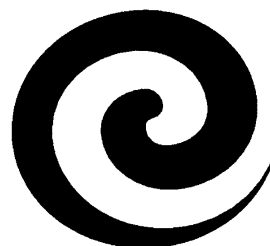
## Addendum

The cost of photoelectric smoke detectors is approximately three times higher than for ionization smoke detectors, \$15 versus \$5. When designing injury prevention programs, Indian health program practitioners must often choose between a less expensive item that can be distributed to more people versus a more expensive item that might have higher utilization, but because of price, will be available to fewer people. Smoke detector intervention programs typically favor purchase of large volumes of the lowest cost smoke detectors, which are the ionization type. But use of ionization detectors may not be the most cost-effective, because people typically disable them due to frequent nuisance alarms from cooking. Once this happens, many individuals are convinced that they do not want or need smoke detectors. It is then difficult to convince them to accept photoelectric detectors, which are less prone to cooking-related nuisance alarms, and less likely to be disconnected. Given limited financial resources, IHS and tribal health programs must determine whether to favor

distribution (quantity) versus utilization (quality) for the community they work with. If photoelectric smoke detectors are purchased, more money will be spent for fewer numbers of detectors. These, however, should gain greater acceptance because of fewer nuisance alarms, and ultimately provide more effective protection from fire-related incidents.

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## HIV/AIDS Treatment Information Service

The Centers for Disease Control and Prevention (CDC) National AIDS Clearinghouse, a national HIV/AIDS (human immunodeficiency virus/acquired immunodeficiency syndrome) reference, referral and distribution service, announces a new HIV/AIDS Treatment Information Service for people living with HIV disease, their families and friends, and health care providers.

The HIV/AIDS Treatment Information Service was developed through a coordinated U.S. Public Health Service

effort to provide timely, accurate information about federally approved treatment guidelines for HIV/AIDS. The service provides answers to questions about treatment of HIV disease and recently approved drug therapies, copies of federally approved HIV/AIDS treatment guidelines, and referrals to other appropriate information resources. The staff includes both English- and Spanish-speaking reference specialists; all are health professionals trained to answer questions concerning HIV disease.

## Internet Access

The Office of Minority Health Resource Center (OMH-RC) recently launched its World Wide Web site. The new web site is located at <http://www.omhrc.gov> and features information on OMH-RC's mission and services, minority health publications and organizations, funding sources for minority health programs and research, and upcoming health conferences.

The OMH-RC has operated a toll-free phone line to respond to inquiries from both consumers and health professionals since 1987. The new web site is another convenient way that the public can obtain minority health information.

Visitors to the OMH-RC web site can access a variety of publications, including *Closing the Gap* newsletter, a bimonthly publication that explores innovative minority health activities of the U.S. Department of Health and Human Services and other public and non-profit organizations. The *Pocket Guide to Minority Health Resources* is a directory of state and regional minority health contacts, federal health information centers and clearinghouses, and national minority health organizations. Also available is a listing of *Sources*

*of Health Materials* for each of the center's target populations. This listing provides information on where to find brochures, videos, and other health resources targeted to African Americans, Hispanics/Latinos, American Indians/Alaska Natives, Asian Americans, and Pacific Islanders.

The new web site also contains information on how to join and use the center's Resource Persons Network, a group of minority health experts across the country who volunteer to provide technical assistance, review documents, and speak at conferences and workshops.

New materials will be added to the web site as they become available. In addition, the OMH-RC is interested in receiving feedback so that they can respond to user needs.

OMH-RC is a nationwide service of the Office of Minority Health, U.S. Department of Health and Human Services. Information specialists staff the center's toll-free line (800-444-6472) and can conduct customized database searches on minority health topics. Services and publications provided by OMH-RC are free.

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## MEETINGS OF INTEREST □

IHS National Councils of SUDs, CDs, and Nurses  
January 6-10, 1997 Scottsdale, AZ

The Indian Health Service National Councils of Service Unit Directors (SUDs), Clinical Directors (CDs), and Nurses will meet in Scottsdale, Arizona, January 6-10, 1997.

More information can be obtained from E.Y. Hooper, MD, MPH, IHS Clinical Support Center, 1616 East Indian School Road, Suite 375, Phoenix, Arizona 85016 (phone: 602-640-2140; fax: 602-640-2138).

Principles of Elder Care Nursing  
January 16-18, 1997 Albuquerque, NM

"Our elders have always been our pathfinders. They have shown us the way to live, to act, and to be. We owe them a great deal. We owe it to them to do everything we can to ensure that all their health care needs are met." *Michael H. Trujillo, MD, MPH, Director, Indian Health Service (IHS).*

"Caring for the Pathfinders: Principles of Elder Care Nursing" is a 2.5-day continuing education conference for IHS and tribal-employed inpatient, outpatient, and public

health nurses. The conference is sponsored by the IHS Elder Care Initiative; the PHS Indian Hospital/Ramah Service Unit, Zuni, NM; the New Mexico Geriatric Education Center; and the IHS Clinical Support Center.

Some of the issues to be explored at this conference include: developmental issues of aging and their impact on family; age-related changes in body systems, and their effects on functional status, presentation of disease, and response to medications and treatments; the role of nurses in planning and providing community-based services for elders; differentiating between depression, delirium, and dementia in elders; effective communication and teaching approaches; and lots more.

For more information, contact Robin Miller, MS, RN, PHS Indian Hospital, P.O. Box 467, Zuni, NM 87327 (phone: 505-782-4431).

Southwest Regional Pharmacy Seminar  
June 6-8, 1997 Scottsdale, AZ

This annual continuing education seminar is held for IHS- and tribal-employed pharmacists working in the IHS Phoenix, Navajo, Albuquerque, Tucson, California, and Portland Areas. More information and an agenda will be available in early 1997. For more information, contact Stephan Foster, PharmD, IHS Clinical Support Center, 1616 East Indian School Road, Suite 375, Phoenix, AZ 85016 (phone: 602-640-2140; fax: 602-640-2138)

*Health care professionals employed by Indian health programs may borrow videotapes produced by the Network for Continuing Medical Education (NCME) by contacting the IHS Clinical Support Center, 1616 East Indian School Road, Suite 375, Phoenix, Arizona 85016.*

## NATIVE AMERICAN MEDICAL LITERATURE □

*The following is an updated MEDLINE search on Native American medical literature. At the end of each cited article, you will find a unique identifying (UI) number. For those of you who may wish to obtain a copy of a specific article, this can be facilitated by giving the librarian nearest you the UI number as well as the complete citation.*

*If your facility lacks a library or librarian try calling your nearest university library, the nearest state medical association, or the National Library of Medicine (1-800-272-4787) to obtain information on how to access journal literature within your region. Bear in mind that most local library networks function on the basis of reciprocity and, if you do not have a library at your facility, you may be charged for services provided.*

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Authors should submit at least one hard copy with each electronic copy. Manuscripts may be received via the IHS Banyan electronic mail system. References should be included. All manuscripts are subject to editorial and peer review. Responsibility for obtaining permission from appropriate tribal authorities/Area Publications Committees to publish manuscripts rests with the author. For those who would like some guidance with manuscripts, a packet entitled "Information for Authors" is available by contacting the CSC at the address below.

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